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## Critical Section

### The Factors Governing the Wound-healing Process

#### MANITOBA MEDICAL REVIEW

### The Treatment of Colles' Fracture

VOL. 22

1942

WILFRED LOUISE WOODMAN

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## Clinical Section

### The Fracture Clinic of the Winnipeg General Hospital

In November, 1939, a special fracture service was begun at the Winnipeg General Hospital. All fractures admitted on the Public Service come under the care of the staff detailed for this duty. The Chief of the Service is responsible for all cases admitted to the wards. There are four junior members who are on duty in rotation for twenty-four hours per day. Each case that comes in and is recorded in the Casualty Department is seen by one of the staff the following morning when the treatment given the day before is checked. Swelling of a part may call for splitting of a plaster, padding may have to be renewed, a "check" X-ray may call for a resetting of the injury.

All cases of fracture dealt with during the week are reviewed with the staff as a whole each Saturday morning at 9 a.m. At this time also, older cases, in-patients or out-patients are examined. An effective record system has been established

and it is proposed to make this rather more elaborate.

The follow-up system is carried out with the help of the Social Service Department of the hospital.

During the two years the Service has been in operation Three Hundred and Seventy-Nine cases have been treated. The variety of lesions has proved interesting and instructive to the Staff. The material presenting itself at the Clinic each Saturday is made use of in the instruction of students.

It will be a pleasure for the members of the Fracture Service to afford such assistance as they can to practitioners throughout the province in dealing with unusual or difficult fracture problems.

Chief of Service, Dr. A. Gibson; Assistants — Dr. W. A. McElmoyle, Dr. M. B. Perrin, Dr. E. S. James and Dr. A. E. Deacon.

### The Treatment of Colles's Fracture

by E. S. JAMES, F.R.C.S. (Eng.)

*From The Fracture Service of the Winnipeg General Hospital*

A Colles's fracture is one in which the radius is broken three-quarters of an inch proximal to the wrist joint. The styloid process of the ulna is frequently torn off. It is most commonly due to a fall on the out-stretched hand. This explains the characteristic triple displacement of the distal fragment, which is forced upwards, backwards, and rotated outwards. The deformity is spoken of as a "dinner-fork" one. It is very important that one recognizes the triple displacement and strives to correct each component.

Generally speaking, fractures of the lower end of the radius or ulna are spoken of as Colles's fractures, although this may not be strictly true. Related fractures include: Smith's or Chauffeur's fracture; separation of the lower epiphysis of the radius; and fractures of the distal quarter of the radius. This latter fracture occurs in children and occurs about two inches proximal to the wrist joint. Separated epiphyses occur in a somewhat similar age group.

In the fracture clinic at the Winnipeg General Hospital there have been 65 such cases. These may be classified as follows:

1. Colles's fracture — 42.
2. Separated epiphyses — 8.
3. Fracture of the distal fourth of the radius — 14.
4. Smith's fracture — 1.

The group of Colles's fractures is made up of 28 females and 14 males, whose average age is 57

years. The youngest was 21 and the eldest 89 years. There were 8 cases of separated epiphyses with ages ranging from 5 to 17 years. There were 14 fractures through the distal quarter of the radius of a similar age group and one Smith's fracture in a man seventeen years of age.

I would like to present the routine treatment of these cases which has proved satisfactory at the fracture clinic, but might add that we are constantly modifying our methods in order to arrive at an ideal.

As in all fractures, there are three fundamentals. These are:

1. Reduction — "Set it."
2. Fixation — "Fix it."
3. Maintenance of function — "Use it."

1. "Set it" — This should be done as early as possible and a local or a general anaesthetic may be used. The local anaesthetic is quite satisfactory and has some advantages over a general one. No separate anaesthetist is required and the lesion can be viewed under the fluoroscope if necessary. The patient is also able to cooperate during the application of the plaster cast. We use a one per cent novocain solution, in which no adrenalin is present, as we feel that the latter may interfere with the healing process. The hypodermic needle is inserted at the level of the radial fracture and when the needle is in the haematoma, which is about the broken bone ends, blood may be aspirated into the syringe. About 5 c.c.'s of novocain solution is now slowly injected into the haematoma.

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This insures complete anaesthesia about the site of fracture. It is also necessary to infiltrate about the ulnar styloid and ulnar collateral ligament. Wait for at least five minutes before beginning the manipulation. The first manoeuvre is to disimpact the fracture. The distal fragment must be then pulled distally, rotated medially, and displaced forwards. The latter is probably the most important part of the manipulation, for it is essential that the articular surface of the radius looks distally and forwards. In many cases this surface is directed distally and backwards and unless this is corrected there is an interference with flexion at the wrist and fingers, and an accompanying weak grip.

A one hundred per cent anatomical reduction is usually accompanied by a one hundred per cent functional result. However, in rare cases, a good result may accompany a reduction which is not perfect.

2. "*Fix it*" — A skin-tight plaster cast is next applied with the hand in the neutral position or with it slightly abducted. Occasionally it is necessary to apply the cast with the wrist acutely flexed in the "Cotton-Loder" position. This position is occasionally necessary when the displacement tends to recur. In adults it is unwise to retain the wrist in this position for longer than five days, as it is an abnormal position and may be followed by a stiffness of the wrist. In children it is not so necessary to change the cast as recovery invariably follows. The cast extends from the knuckles to just below the elbow and must extend across the palm so that it does not interfere with the complete closure of the hand. The cast must be cut away from the thenar eminence and allow unrestricted thumb movements. In thin, old women, marked oedema is a frequent occurrence and we are in favor of a padded cast. The cast can be slit along the ulnar border so as to allow for some swelling of the soft parts and prevent any interference with the circulation. This is important because if the cast is too tight and remains so, for even several hours a "frozen" hand may result or, to say the least, recovery of strength in the hand may be greatly delayed.

3. "*Use it*" — Before any patient is allowed to depart, he is instructed to open and close the fist actively, pronate and supinate, flex and extend the elbow, and to put the hand above the head at least once a day. Passive exercises are discouraged and early removal of the cast with massage has been given up entirely. Active exercises mean active contraction of the muscles and so an increased blood supply to the part, so that the healing processes are speeded up. It also means that the muscles maintain their tone and strength, so that they are not weak when the fracture is healed. Active movements also prevent the formation of adhesions in synovial sheathes and in the joints. We are not now bothered with stiff shoulders following Colles's fractures. These people are given a sling but are allowed to use it for only

twenty-four hours. After that they are encouraged to use the hand to do lighter duties. There is really no reason why a stenographer should not go back to work or grandmother resume her knitting for the Red Cross. We feel that the cast does not interfere with their activities, so there is no rush in removing it, and are convinced that better results follow leaving it on for five or six weeks.

Most practitioners will tell you that they have no difficulties in treating Colles's fractures. Our experiences have been otherwise. There have been no bad results, but in others there has been room for improvement. Figures published by various fracture clinics in this country and in England give the results as follows: good, 70%; fair, 20%-25%, and not so good, 5%-10%. There are several reasons for not getting a good result in all cases. In some there is an under-correction of the deformity and in others, excessive oedema, with a tight cast, may account for a frozen hand or stiff fingers. A certain amount of blame may be placed on the patient, for, as you see, many of them are of a ripe old age, their bones are soft and brittle and the fracture is a comminuted one, with many small irregular fragments making accurate reduction impossible. In these it is really amazing that the results are so good. There may be a slipping of the distal fragment, especially if the cast is removed too soon. On rare occasions there is a late rupture of the tendon of the Extensor Pollicis Longus. Some patients complain of pain over the ulnar styloid, or head of the ulna after the cast has been removed. This is due to some interference with the triangular ligament and may be relieved by re-applying the cast for another few weeks or cured by doing an osteotomy of the ulna.

As this is the most common fracture in the body, it is the one we should know most about. The fracture service at the Winnipeg General Hospital will be happy to be of any assistance to those in difficulties.

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## OBITUARY

### Dr. Theodore Ewonchuk

Stricken while serving as senior interne in St. Boniface Hospital after his graduation in 1933, Dr. Theodore Ewonchuk, age 36, died on December 19th at St. Boniface Sanatorium. He was born at Sarto, Manitoba, and is survived by his mother, four brothers and two sisters.

In memory of their father, the late Dr. O. Bjornson, his two daughters have offered to the University of Manitoba an annual award of \$25.00 for the best essay in English on Shakespeare and his works.

The sons of the late Dr. Charles J. Jamieson have presented to the Manitoba Curling Association in memory of their father a cup to be competed for by junior players. Dr. Jamieson was an enthusiastic curler, and always wished to encourage young men to take up the sport.



## Personal Notes and Social News

*Conducted by Gerda Fremming, M.D.*

Dr. J. B. Thom, former resident of Manitoba, who had resided at Trail, B.C., since 1908, died October 19th at Penticton, B.C. He graduated from the Manitoba Medical College in 1907. He was a pioneer medical practitioner in Trail and founded the first hospital there.

♥ ♥ ♥

Dr. and Mrs. Jack A. Waugh, Trevere apartments, are receiving congratulations on the birth of a son, Bruce James, on December 26th, 1941, at Winnipeg General Hospital.

♥ ♥ ♥

Dr. T. I. Brownlee, of Russell, Man., on a recent big game hunt, bagged a good sized deer.

♥ ♥ ♥

Dr. I. H. Davidson has been made a life member of the College of Physicians and Surgeons.

♥ ♥ ♥

Dr. and Mrs. R. E. Whittaker, of Yorkton, Sask., are spending the holidays with his parents in Winnipeg.

♥ ♥ ♥

Dr. and Mrs. E. Steinhorsen, of Reykjavik, Iceland, at present in Winnipeg, are receiving congratulations on the birth of a son.

♥ ♥ ♥

Dr. and Mrs. Oliver Waugh, Harvard avenue, are enjoying a visit from their son, Douglas, who is a student at McGill.

♥ ♥ ♥

Dr. E. H. Alexander and family are spending Christmas in Toronto. They intend visiting other Eastern Canadian points before returning to Winnipeg about January 5th.

♥ ♥ ♥

Dr. James Edward Musgrove, of Rochester, Minn., son of Dr. and Mrs. W. W. Musgrove, of Winnipeg, was married Saturday, December 6th, to Miss Marion McLellan Smith, daughter of Mr. and Mrs. E. J. Smith.

♥ ♥ ♥

Dr. R. F. Yule, formerly of Kenton, Man., has moved to The Pas where he is connected with the Department of Indian Affairs.

♥ ♥ ♥

Congratulations are being received by Dr. and Mrs. A. G. Dandenault on the birth of a daughter December 3rd at Misericordia Hospital.

♥ ♥ ♥

Dr. Robert M. Ramsay, who is doing post-graduate work in ophthalmology at St. Paul, Minn., spent Christmas with his parents in Winnipeg.

Dr. R. G. Greer has taken over the practice of Dr. Jos. Onhauser, who has left Winnipeg to reside in the East.

♥ ♥ ♥

Dr. Hazel Krause was married recently to Surgeon-Lieutenant H. G. Farish. They are residing in Victoria.

♥ ♥ ♥

Dr. and Mrs. A. R. Birt are receiving congratulations on the birth of a daughter, Eleanor Margaret, on December 10th.

♥ ♥ ♥

Dr. and Mrs. Douglas T. Martin and small daughter, Shirley, of Regina, spent a short visit in Winnipeg, the guests of Mrs. James Stewart.

♥ ♥ ♥

Captain Alan A. Klass, R.C.A.M.C., and Mrs. Klass (nee Helen Jacob), are being congratulated on the birth of a daughter, Baillie Jean, on December 10th.

♥ ♥ ♥

Dr. and Mrs. George S. Baldry and their daughter, Kathryn Joan, are spending the Christmas season in Winnipeg with Dr. Baldry's parents, Mr. and Mrs. George E. Baldry.

♥ ♥ ♥

Dr. Dorothea Wardrop, '39, has arrived from the Royal Victoria Hospital, Montreal, to accept a position at the Winnipeg General Hospital in the department of anaesthetics.

♥ ♥ ♥

Dr. Brian Murphy spent a short time in Winnipeg en route to Montreal.

♥ ♥ ♥

Dr. and Mrs. John Poole, of Neepawa, were visitors in Winnipeg for the parliamentary session.

♥ ♥ ♥

Miss Helen Anderson, daughter of Mrs. W. E. Anderson and the late Dr. Anderson, was married on November 24th to Robert M. Ross, of Hamilton, Ont.

♥ ♥ ♥

Captain George C. Fairfield, R.C.A.M.C. (now Overseas), and Mrs. Fairfield (nee Stella Madill) are receiving congratulations on the birth of a daughter (George-Ann), on December 8th.

♥ ♥ ♥

Wing Commander Francis A. L. Mathewson, R.C.A.F., who has spent the last year in Regina, has been transferred to headquarters at Ottawa.

♥ ♥ ♥

Dr. and Mrs. S. S. Toni, of Altona, Man., are being congratulated on the birth of a daughter on November 28th.



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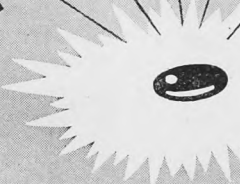
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## Editorials and Association Notes

### The Manitoba Medical Review

ESTABLISHED 1921

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*Editor*

F. G. ALLISON, B.A., M.D. (Man.), M.R.C.P. (Lond.)

*Editorial or other opinion expressed in this Review is not necessarily sanctioned by the Manitoba Medical Association*

### Admiral Gordon-Taylor's Address

Surgeon Rear-Admiral Gordon-Taylor addressed a special meeting of the Winnipeg Medical Society in Theatre A on December 8th.

He stated that the surgical advances due to the last war were more wide-spread use of transfusions, better care of fractures, and the birth of plastic surgery and chest surgery.

Many air-raid victims in this war are brought in to hospital in profound shock and need enormous amounts of blood products to bring them around. Usually one pint of blood is given for every two of plasma or serum. Dried plasma is available for the use of surgeons with the armed forces. It can be dissolved in saline in one minute.

The crush syndrome is a newly recognized condition. Persons whose limb muscles have been compressed in ruins may develop hypertension forty-eight hours later, and anuria. Death frequently follows. At post mortem the convoluted tubules in the kidney are degenerated and full of haemoglobin break-down products.

For burns of the trunk some tanning solution, e.g., a combination of aniline dyes is favored, but for burns of the hands or face, saline baths followed by a sulfanilamide or sulfathiazol powder is preferred.

Blast injuries of lungs produce a blood-stained frothy sputum, and an X-ray plate shows areas of haemorrhage and collapse. An acute abdomen is frequently simulated. Blast injuries of the abdomen may rupture viscera or give retro-peritoneal haemorrhage.

The admiral concluded his address with a series of lantern slides of the Royal College of Surgeons and pictures of individual patients. Many human interest stories were told, including one about a parturient woman and one about an indomitable professional woman.

### Greetings From The President

In these momentous days when superficial values are changing, fundamentals remain the same, and the need of unity of purpose is more evident today than ever before.

The most important duty confronting us at this moment is to maintain the supply of medical officers for His Majesty's services. Quite a number of you have already answered the call and more of us will join you before many months have passed. However, those of us who must remain at home are faced more than ever with the need of co-ordinated effort.

Organized medicine is today confronted with the challenge of radical changes to be instituted by the Federal Health Insurance Bill. Your executive has pledged your organization to complete co-operation with The Canadian Medical Association and the Federal Government in working out a scheme equitable to the public and to the physicians.

With these things in mind the Executive Officers of the Manitoba Medical Association send greetings to each physician in the province with an appeal for complete support of organized medicine.

Only in a spirit of mutual trust and unselfishness can we meet the uncertainties of the future with confidence.

—H. D. KITCHEN.

### Frontal Lobotomy for the Insane

A discussion on this important new treatment for insanity is given in the *Journal* of the American Medical Association for August 16th, 1941, page 517.

The operation was first described by Moniz of Lisbon in 1936. The antero-posterior communications of the frontal lobe on one side are cut, through a trephine hole at the level of the coronal suture. The grey matter is left intact save for a cut large enough to introduce a Killian periosteal elevator with which to slice the white matter. At a second operation the other frontal lobe is attacked. No improvement can be expected until after the second operation.

Five surgeons give reports on their results on a total of 130 cases. Of the 130 cases there were four deaths following the operation, nineteen are still in institutions, and the others were sufficiently restored to return to their homes or to resume work. At least thirty-eight are now gainfully employed. Many others have resumed their tasks as housewives.

Most of the patients had involuntional melancholia or schizophrenia. Most of them had had long courses of shock treatment and years in hos-

pital. Many were previously tube-fed, mute, homicidal, suicidal or filthy. One woman who had been mute for nine years asked for a manicurist post-operatively. Another previously violent patient asked for newspapers forty-eight hours after the second operation.

Less radical methods of treatment should be tried first as this operation causes some loss of initiative, the critical faculty, temporal orientation, foresight and tact. Some patients became too cheerful and spent money they did not have. Some put on too much weight. There was no change in the I.Q. of these patients as a result of the operation.

It must be borne in mind that this operation is still in the experimental stage and not yet widely accepted. Also, a mutilating brain operation which causes some loss of foresight and the critical faculties is not one to be undertaken if any other treatment will avail.

### Prepayment Health Scheme Discussion Winnipeg Medical Society

A special meeting of the Winnipeg Medical Society was called on December 12th to hear Dr. Moorhead, Chairman of the Committee on Economics of the Manitoba Medical Association present a prepayment health scheme. Dr. Hossack asked Dr. Kitchen, President of the Manitoba Medical Association to take the chair.

Dr. Fahrni, President of the Canadian Medical Association spoke first, stating that the Canadian Medical Association Council had had a meeting with the Minister of Health in Ottawa on October 19th to discuss the proposed Dominion Health Insurance Bill. A Committee of Seven was appointed from the Council of the Canadian Medical Association to advise the Minister. The proposed Bill gives complete medical and hospital service for all persons earning \$2,400.00 a year, or less. A questionnaire will be sent to every doctor in Canada on the subject.

Dr. Moorhead gave an outline of the prepayment health scheme the Committee on Economics of the Manitoba Medical Association had prepared. He explained that the Manitoba Hospital Service Association would offer the plans approved by the meeting, to the public.

#### SERVICE A

Surgical Service in hospital only for wage-earners of \$2,500.00 a year or less (operative and cutting procedures for the treatment of diseases and injuries; treatment of fractures and dislocations) X-Ray to the value of \$15.00 if ordered by doctor. Maternity services in hospital after one year's continuous membership.

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1.25 a month for husband and wife  
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and unemployed children under  
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#### SERVICE B

A complete medical and surgical service as provided in the Firefighters' Club. Charges for those earning \$2,500.00 a year or less

\$1.50 a month for husband or employer

1.30 a month for wife or adult dependent

.80 a month for unemployed children under 19 years.

For those earning over \$2,500.00 the difference between the fees paid by the scheme and the usual fees, could be paid in addition by the patient, with his consent.

Dr. Kitchen pointed out that the profession would have to make an outlay of \$5,000.00 to start the scheme.

After much discussion it was moved by Dr. Sheps and seconded by Dr. MacCharles, "That we support Plan B and go on record as approving the principle advocated in Plan A, but recommend that it be worked out in greater detail in the future, particularly with regard to the questions of X-rays and pre and post natal care." —Carried.

#### Sequel.

The X-ray controversy has been solved by leaving out the X-ray benefit in Service A. Pre and post natal care will not be included in Service A if done outside the hospital.

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# Post-Graduate Course in Therapeutics

February 11, 12, 13, 1942

A post-graduate course in therapeutics will be held on February 11, 12 and 13, by the Faculty of Medicine of The University of Manitoba. Two distinguished guest speakers have consented to attend this course — Dr. C. S. Watson, Professor of Medicine at the University of Minnesota and Dr. W. F. Gillespie, Professor of Surgery at the University of Alberta. The visitors will also speak

at a meeting of The Winnipeg Medical Society on Friday evening, February 13th.

The registration fee for this course will be Ten Dollars (\$10.00). Applications should be addressed to Dr. L. G. Bell, The Secretary of The Post Graduate Committee, Medical College, Bannatyne avenue, Winnipeg.

## WEDNESDAY, FEBRUARY 11th

### Morning:

- 9.00- 9.30 The Use and Abuse of Oxytocics — Dr. Eleanor Black.
- 9.30-10.00 Treatment of the Toxaemias of Pregnancy — Dr. S. Kobrinsky.
- 10.00-10.30 The Management of Occiput — Posterior — Dr. F. G. McGuinness.
- 10.30-11.00 Causes and Treatment of Backache in Women — Dr. C. R. Rice.
- 11.00-11.30 Causes and Treatment of Vaginal discharges — Dr. B. D. Best.
- 11.30-12.00 Management of Menstrual Disturbances and the Menopause — Dr. J. D. McQueen.

### LUNCHEON

*Children's Hospital—Presentation of Clinical Cases*

## SYMPOSIUM ON POLIOMYELITIS

### Afternoon:

- 2.00- 4.00 This symposium will include a discussion of Epidemiology, Pathology, Anatomical Observations, The Kenny Treatment of Poliomyelitis, Serum Treatment, Vitamines in relation to Poliomyelitis.

Speakers will be announced later.

## THURSDAY, FEBRUARY 12th

### Morning:

- 9.00-10.00 Round Table conference  
Acute Intestinal Obstruction — Dr. Chas. Burns, Dr. P. H. T. Thorlakson and Dr. J. C. McMillan.
- 10.00-10.30 Treatment of Bronchiectasis — Dr. M. B. Perrin.
- 10.30-11.00 Treatment of Minor Rectal Maladies — Dr. W. F. Gillespie.
- 11.00-11.30 Treatment of Compound Fractures — Dr. Alex. Gibson.
- 11.30-12.00 Treatment of Prolapsed Intervertebral Disc. — Dr. O. Waugh.

### LUNCHEON

*Winnipeg General Hospital*

### Afternoon:

- 2.00- 2.30 Diagnosis and Treatment of Nutritional Anaemias — Dr. J. M. McEachern.
- 2.30- 3.00 Diabetic Problems in General Practice — Dr. H. D. Kitchen.
- 3.00- 3.30 Treatment of Parenchymatous Liver Diseases — Dr. Cecil Watson.
- 3.30- 4.00 Some Points in Examination of the Patient — Dr. A. T. Mathers.
- 4.00- 4.30 The Use and Abuse of Some Common Drugs — Dr. L. G. Bell.

## THURSDAY EVENING

Dinner to be given by The Department of Health and Public Welfare.

Round Table Discussion on  
Public Health Problems.

## FRIDAY, FEBRUARY 13th

### Morning:

- 9.00- 9.30 The Treatment of Virus Pneumonia — Dr. D. S. McEwen.
- 9.30-10.00 Presentation of Clinical Cases — Dr. J. D. Adamson.
- 10.00-10.30 Treatment of "Ulcerative Colitis" — Dr. Cecil Watson.
- 10.30-11.00 Sedatives — Dr. M. Ormerod.
- 11.00-11.30 Treatment of Chronic Arthritis — Dr. A. Hollenberg.

### Afternoon:

- 2.00- 2.30 Tumours of Skin and Lip. Benign and Malignant — Dr. M. R. McCharles.
- 2.30- 3.00 The Diagnosis of Acute Abdominal Pain — Dr. W. F. Gillespie.
- 3.00 -3.30 The Use of Sulphonamide Drugs in Surgery — Dr. G. S. Fahrni.
- 3.30 -4.00 Paper from Department of Urology. Subject to be announced.

## EVENING

*Meeting of Winnipeg Medical Society*

### Speakers:

- Dr. W. F. Gillespie: Physiological Principles in the Repair of Inguinal Hernia.
- Dr. C. Watson: Some Physiological and Clinical Aspects of Jaundice.

## Winnipeg Medical Society

Hossack, J. C. — *President*Wheeler, Digby — *Past President*Cameron, H. F. — *Secretary*Stewart, C. B. — *Vice-President*McGuinness, F. G. — *Past President*Swartz, David — *Treasurer*

## MEETINGS

Third Friday each month

## Next Meeting

January 16th

## MEETINGS

start exactly at 8.15 p.m.

### NOTICE BOARD

December was a busy month. There were two special meetings and a regular one — all of them well attended.

The first special meeting was on the eighth, when the society was addressed by Surgeon Rear Admiral Gordon-Taylor. He told a simple story of simple people with all the eloquence of simple language. He told of the victories of science over savagery and of bravery over bombs. There were touches of humour, but these served only to deepen the pathos, and make the tragedy more grim.

At the end of the meeting, he was asked if he would accept from us Honorary Membership in the Society. We understood, that in accepting it, he honoured us more than we honoured him, but it was the highest gift within our power, was an expression of our deep respect, and carried with it our cordial good wishes. As such, he was good enough to accept it.

\* \* \*

On the tenth, the Economics Committee of the M.M.A. laid before a large meeting certain health insurance proposals. Dr. Kitchen, president of the M.M.A., was chairman. The proposals aroused enough interest to keep up a lively discussion until midnight — parting was such sweet sorrow that they talked on till it was morrow! Further details will doubtless be given elsewhere in this issue.

The regular meeting on the nineteenth was as usual a "standing room only" affair. (I sometimes wonder what we would do if all the members were to turn out on a single night). Three most excellent papers presented pleasantly and clearly the important facts regarding the oestrogens and androgens. I am quite sure that everyone who attended learned a great deal from Dr. Best, Dr. Bell and Prof. Cameron. Prof. Cameron (tempering the wind to the shorn lambs) did not mention more than a dozen structural formulae, and did not elaborate on these. Altogether the three discourses were most interesting and helpful. The lateness of the hour cut down on the questions, but many had their difficulties resolved in the presentation of the papers.

The scientific programme was preceded by a brief ceremony in which handsome certificates of life membership were presented to Doctors J. R. Davidson, J. N. Hutchison, R. F. Rorke and H. M. Speechly who were introduced by Doctors J. A.

Gunn, W. A. Gardner, Gordon Chown and O. C. Trainor respectively.

Heretofore, it has been the custom of the Executive to notify by letter those whom it had decided to honour by the gift of life membership. It seemed, however, that such men should be publicly and more tangibly rewarded. "The Iniquity of Oblivion blindly scattereth her poppy." Great deeds done, or great services rendered, a score of years ago are often quite unknown to the younger generation who unconsciously profit by them.

It is therefore fitting that those who have well served the community and the profession should be honoured in as public a way as possible, and so four men, each with many years of loyal and excellent service behind him, were given certificates of life membership, in the presence of a large audience.

It is a question whether this gift should be awarded more generally, whether continuous membership over a number of years, or the reaching of a certain age, or some other criterion, should be applied. This will be the concern of other Executive Committees. We are satisfied to have set a precedent which will in all likelihood be followed.

\* \* \*

Members overseas are not likely to be forgotten. Dr. C. B. Stewart was appointed to head a committee to look after them. To this Committee the M.M.A. nominated Dr. Coad and we added Dr. Jack McKenty. Already parcels are on their way and more will follow. The Executive feel that you want us to be generous. However, we rely altogether upon fees for revenue. We want everyone who has not yet paid, to regard his fee as essential in getting things that our friends need but cannot easily obtain at their present stations.

The Bundle for Britain grows apace. Dr. Coad tells me that over three hundred and seventy articles have been received and I understand there is much more which has not yet been checked. Unfortunately, many donors did not attach their names to their donations. We would have liked to publish a list of all those who have contributed. Instead, we say a general "Thank you" to all who have helped out.



The January meeting will be devoted to the Army and Air Force. The programme is not yet complete as to details, but Col. Bell and Flight Lieut. Corke are arranging these. The senior students and internes are urged to attend. Their future is so much bound up with the needs and arrangements and demands of the fighting services that they should take this opportunity of finding out where they stand.

At the moment Winnipeg is perhaps the safest spot upon the globe. The wail of sirens, the shriek of bombs, the clatter of ack-ack, the crash of explosions, reach us only when filtered through our radios; but blind indeed is he who would hold that "It can't happen here." With the war upon our very door steps, black-outs become probable and bomb raids possible. There is, further, a very real danger from sabotage. That too can happen here. It requires little imagination to picture the destruction that could be wrought by a few determined rogues acting swiftly, simultaneously and in concert in various vulnerable parts of the city. Moreover, as desperation grows in the hearts of our enemies and over-confidence rises in our own, their efforts are likely to become more wanton, more violent and more rash.

Because these perils are real and the danger not remote, the provincial government has been moved to lay plans to guard us from attack and, in the event of attack, to care for casualties. To this end a large committee has been formed. It is called the Civilian Defence Committee and includes a Medical Welfare sub-committee of which the chairman is Col. D. S. McKay. The sub-committee is made up of representatives from the St. John Ambulance Brigade, the Provincial and Civic Health Departments, the Red Cross, the Hospital Association, the Association of Registered Nurses, the Manitoba Medical Association, a number of other organizations and, incidentally, the Winnipeg Medical Society.

Dr. F. W. Jackson is Director of the sub-committee's activities and the very large personnel is further split up into sub-divisions covering hospitalization, nursing care, medical care and evacuation, each of which has its proper chairman.

The Society was not represented at the original meetings when the set-up was planned, but we have been asked to appoint representatives for future meetings. The following were nominated to attend a meeting on the twenty-ninth: Dr. J. E. Tisdale, Dr. Burton Stewart, Dr. Sigurdson and Dr. H. M. Cameron.

The plan to care for casualties is this:—The City will be irregularly zoned with a hospital as the centre of each zone. In each hospital there will be a team or group appointed to our sub-division to organize local arrangements and, in the event of attack, to care for casualties. In each of these hospital areas there will be a number of first aid stations. Each of these will be staffed by a surgeon, two or more St. John Ambulance men and two or more St. John Ambulance nurses. These stations

will evacuate their casualties to their zone hospital. It is our job to get the medical personnel, or, in the words of the Constitution of the Civil Defence Committee, "the provision of medical staff for first aid stations, casualty clearing depots and the general hospital as well as any other hospitals which should be organized."

This is a Dominion wide movement. There is ample reason for it at the coasts. Here it may seem a catering to hysterical pessimism. However, as we sometimes tell our patients in the matter of their wills, it is better to live prepared than to die unprepared. In this day of paradox and surprise it is wiser to prepare for what may never come than find ourselves overwhelmed by disaster and unready.

It may interest you to know that another scheme is in preparation for victims of disaster. This one is concerned with measures to be taken for the care of the sick in the event of a serious pan-or epi-demic breaking out. The close association of wars and epidemics is notorious even in modern days. Plague is a real threat. In California it has for years been the cause of great concern on the part of health officials. Only the greatest and most constant vigilance has sufficed to keep it in check. It is a real threat here also, because of the multitude of rodents, wild and domestic, all of which are natural plague carriers.

Moreover, the cycle is almost complete when influenza is timed to again sweep its devastating way over the world. That great Captain of the Men of Death has revisited us at regular intervals and every time it has slain its hundreds of thousands. Furthermore, gloomy prophets, who should know whereof they speak, augur a more widespread and more virulent attack of equine encephalitis, and beyond a doubt, there will be more polio next summer.

Against these onslaughts, a defence is being built. A Dominion Committee under the chairmanship of Dr. O. C. Trainor is formulating plans for the protection and care of the threatened and sick. Those who are inclined to see little wisdom in preparing for bombs will not deny the prudence of preparing for these other menaces in comparison with which bombs are mere fireworks. The preparation for raids may thus be of considerable value for it will fit easily into the other plan. It is possible that we shall never use our air-raid precautions, but the time may not be far distant when every means at our disposal will not be too much; when talk of turning schools into hospitals will evoke not a smile but a sigh; and death, not threatening from the skies but striking upon the streets, will spread disaster and dismay as widely as ever before.

Of Influenza it can be said with particular truth "That which was, is that which shall be." Those of us who had experience of the last epidemic know how terrible it was and are eager to mitigate its ravages if we can. Early and careful planning against what seems to be inevitable is the height of prudence and while our rôles have not yet been cast, there can be no doubt we shall fill them gladly.



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## Department of Health and Public Welfare

### "A Sewage System for a City of 200,000 People"

We are publishing herewith the sixth of the essays prepared by the medical students before taking the final examination in Preventive Medicine at the Faculty of Medicine of the University of Manitoba last year. The one for this month is written by Dr. D. B. Stewart, on the subject "A Sewage System for a City of 200,000 People," and reads as follows:

"The problem of city sewage disposal is one which has only been successfully dealt with within the last century. Earlier systems, while in some cases extremely well engineered, were designed for the drainage of storm and surface water only, and the problem of disposal of excreta and household wastes was largely left to the individual house-owner. With the industrial revolution, however, came the flow of population to the cities and the added burden of industrial waste-products. Even before the advent of the new bacteriology it was recognized that the proper disposal of excreta was a great factor in the prevention of infectious diseases, and with this knowledge and the sudden impetus of the age the science of sewage engineering advanced rapidly.

"The sewage of a large city comprises excreta and waste water from dwellings, and by-products from industrial plants. The total works out at from 100 to 200 gallons per capita per day. Thus the disposal system of a city with a population of 200,000 must be able to cope with the tremendous volume of 20 to 40 million gallons of sewage daily. The problem is to collect this huge outflow, conduct it away from the centre of population, and dispose of it in such a way that it will not contaminate water or food supplies or constitute a nuisance.

#### COLLECTION:

"It is now generally considered that storm, surface and ground water should not be directed into the general sewage system, but should be run off by a separate system of drains. This material has not the objectionable qualities of true sewage, it contains a large amount of grit and detritus, and is highly variable in quantity.

"The arrangement of the collecting sewers depends on the topography, the density of the population and the type of sewage. Each sewer should be large enough to easily convey the maximum flow expected from its district, and the gradient should be such as to guarantee an adequate rate of flow without being so great as to cause undue erosion of the pipe. The rate should be at least two feet per second. In cities laid out on level ground pumping stations may be necessary. Man-holes are placed at frequent intervals to permit inspection and cleaning, and a system of intercepting sewers is necessary to ensure the rapid delivery of the material to the processing plant and also to deal with local overload.

#### DISPOSAL:

"Once collected, the sewage must be disposed of. The time-honored and cheapest method is that of dilution, wherein the sewage is dumped into a large body of water and the purification process is left up to Nature. But it must be certain that the sewage-contaminated water will not become a dangerous source of infection or become a nuisance due to stagnation and putrefaction.

"The fate of sewage diluted in a large body of water may be summarized as follows:

- (1) Separation of suspended material which settles to the bottom.
- (2) Bacterial decomposition of organic matter, both in the separated portion and in that which remains in solution or suspension, and

- (3) The destruction of bacteria.

"The absolute essentials for disposal by dilution are:

- (1) Adequate dilution. The minimum standard is variously quoted at from 1:40 to 1:500. Thorough mixing is also important.
- (2) A rapid flow of water.
- (3) Adequate oxygen concentration in the water. If the biochemical oxygen demand of the sewage (B. O. D.) is greater than the available oxygen supply putrefaction due to the growth of anaerobic organisms sets in.
- (4) Most important of all, there must be no possibility of contaminating human water or food supplies, and putrefaction must be kept at a minimum.

"Where these optimal conditions are not present, it becomes necessary to abandon the dilution system for what may be termed **controlled sewage disposal**.

"The details of the processing vary widely in different plants, as this too depends much on local conditions. However there are three main steps which correspond to the stages of purification of sewage-contaminated water. Firstly, the separation as far as possible of solid and liquid components; secondly, the so-called key processes which all depend on purification by bacterial action; finally, the disinfection and disposal of the final products. These stages will be considered in more detail, especially as they would likely be used in a city of 200,000.

#### I. Separation.

"A greater amount of grit and detritus is present where a combined collecting system is used. Even in the case of a separate system, however, there is a good deal of large-particle material. This is usually removed by a series of grids and screens. The screenings may be buried or compressed and burned. In some plants a comminutor is used which converts this material into a pulp which is then allowed to proceed with the rest of the sewage. If much grit is present it is allowed to settle out in a tank known as a grit chamber.

"The most important process is that of sedimentation. The sewage is run into large tanks where the rate of flow is greatly reduced, and here it is allowed to remain until a large proportion of the suspended material settles as sludge to the bottom of the tank. If plain tanks are used the sludge and effluent are piped off and treated separately. Most commonly however the two-storey Imhof or Emscher type of tank is used, in which the sludge settles into a digestion chamber where anaerobic decomposition occurs. The chief advantage of this is a cleaner effluent, as it is not contaminated by passing over the decomposing sludge. Also the resulting sludge is smaller in bulk and easier to handle. The gas formed during decomposition, chiefly methane, is collected and used for heating purposes.

"Precipitation of the sludge may be aided by the addition of various chemicals which cause flocculation of the finer particles. This however adds to the expense and is rarely necessary.

#### II. The "Key Processes."

"The effluent from the sedimentation tanks still

contains much putrescible material in solution or suspension and has a high B. O. D. The process of rendering this material inert depends mainly on oxidation and filtration.

"The older and simpler methods of treating this material are irrigation and intermittent sand filtration, which both demand a large area of light dry soil or sand. Also the risk of contamination of food-stuffs and ground water is always present. Contact beds are compartments filled with porous material such as coke, which are alternately filled with sewage and emptied. They are used in series, and are too cumbersome for use on a large scale. "Trickling filters" are somewhat similar beds of porous material, well under-drained, over which the effluent is sprayed. This results in a high degree of oxygenation, but produces a certain amount of smell and is apt to breed insects.

"The most efficient and most easily controlled method is the recently developed activated sludge treatment. The basis of this process is the fact that when sludge is charged with oxygen either by agitation or by blowing air through it, it tends to flocculate into slimy masses which are teeming with aerobic organisms. When this is added to untreated effluent it is most effective in hastening the breakdown of organic material, and furthermore when it is allowed to settle out a great deal of the finely suspended and colloidal material from the effluent goes with it. This process is carried out in bio-aeration tanks in which the contents are kept in sufficient motion to hold the sludge in suspension and secure adequate aeration. The sludge is then collected by precipitation, re-activated, and used again.

### III. Finishing Processes.

"The final liquid effluent after most of these processes is clear and relatively non-offensive. Yet it cannot be guaranteed to be free of pathogenic bacteria. Chlorination is usually resorted to as a final touch before the effluent is drained into some nearby waterway or used for irrigation.

"The final disposal of the sludge is perhaps the most difficult problem. Raw sludge is offensive and bulky. Activated sludge is even bulkier. After "digestion" by anaerobic organisms in Imhof tanks or special digestors the sludge is reduced to less than half its bulk and is relatively inoffensive, so usually all the sludge not used in the activated sludge process is treated in this manner. Finally it is dried, either by exposure to air, by mechanical methods such as pressure or suction, or by heating. The air-drying method, while cumbersome, is by far the cheapest and is usually used. The dried sludge is considered to be harmless, and may be used as filler in low-lying ground or sold as fertilizer.

"To sum up. The type of layout for a sewage system varies with so many factors that each city presents an individual problem. However the average modern disposal system for a city of 200,000 should likely have:—

- (1) An adequate collecting system of the separate type.
- (2) Screens for the removal of detritus.
- (3) Combined separation and sludge - digestion tanks (Imhof).
- (4) Bio-aeration tanks and settling tanks for the activated sludge treatment.
- (5) Equipment for chlorination of the effluent.
- (6) Provision for air - drying of the digested sludge."

### COMMUNICABLE DISEASE REPORT

October 8th - December 2nd

**Chickenpox:** Total 413—Winnipeg 195, Flin Flon 55, St. Boniface 20, Kildonan East 20, Woodlands 16,

Unorganized 15, Brandon 11, St. Vital 10, Deloraine Town 9, Tuxedo 9, Kildonan West 7, Dauphin Town 4, Siglunes 4, Lac du Bonnet 4, Minitonas 4, Whitehead 4, St. Clements 3, Portage la Prairie Rural 2, Ste. Rose Rural 2, Elton 1, Harrison 1, Morris Town 1, Norfolk South 1, Rockwood 1, Selkirk 1, St. Paul East 1, Brenda 1, Glenella 1 (Late Reported: Flin Flon 3, Deloraine 2, Unorganized 2, St. Vital 1, Norfolk South 1, Assiniboia 1).

**Mumps:** Total 318—Tuxedo 81, Winnipeg 78, The Pas Town 45, Kildonan West 44, Brandon 27, Fort Garry 8, Transcona 4, St. James 3, Unorganized 3, Woodlands 1, Flin Flon 1, Pembina 1, Selkirk Town 1 (Late Reported: Tuxedo 17, The Pas 2, Rockwood 1, Dauphin Rural 1).

**Scarlet Fever:** Total 133—Winnipeg 31, Flin Flon 21, Brandon 13, The Pas 8, Dauphin Rural 6, Dauphin Town 6, Swan River Rural 6, Unorganized 5, Thompson 4, Kildonan West 4, Souris Town 4, St. Boniface 4, Glenwood 4, Portage la Prairie City 2, St. Clements 2, Fort Garry 2, Tuxedo 2, Bifrost 1, Killarney 1, Minitonas 1, Langford 1 (Late Reported: Dauphin 4, Bifrost 1).

**Measles:** Total 120—Unorganized 28, Winnipeg 13, Siglunes 9, Coldwell 7, Brandon City 5, Flin Flon 3, Rosser 3, Fort Garry 2, Langford 1, Gilbert Plains Village 1, Lansdowne 1, Rivers Town 1 (Late Reported: Lansdowne 36, Eriksdale 4, Flin Flon 4, Coldwell 1, Tuxedo 1).

**Tuberculosis:** Total 94—Unorganized 18, Winnipeg 12, Brandon 5, Rockwood 4, Dauphin Rural 4, Swan River 4, Mossey River 3, The Pas 3, Selkirk Town 3, Birtle Rural 2, Franklin 2, St. Clements 2, Ethelbert 2, Dauphin Town 2, Archie 1, Argyle 1, Boulton 1, Clanwilliam 1, Coldwell 1, De Salaberry 1, Cypress South 1, Flin Flon 1, Glenwood 1, Harrison 1, Hillsburg 1, Kildonan East 1, La Broquerie 1, Langford 1, Minitonas 1, Lorne 1, Portage la Prairie Rural 1, Rhineland 1, Strathcona 1, Strathclair 1, St. Boniface City 1, St. Francois Xavier 1, St. James 1, Ste. Rose Rural 1, St. Vital 1, Tache 1, Victoria Beach 1, Woodlands 1.

**Anterior Poliomyelitis:** Total 48—Lansdowne 3, Winnipeg 3, Kildonan West 2, Portage la Prairie Rural 2, Sifton 2, Stanley 2, Binscarth Village 1, Lakeview 1, Macdonald 1, Rosedale 1, St. Clements 1, St. James 1, St. Vital 1, Westbourne 1, Riverside 1 (Late Reported: Kildonan East 2, Portage Rural 2, St. Boniface 3, Ste. Rose du Lac 2, Swan River Rural 2, St. Vital 2, Unorganized 2, Springfield 2, Norfolk South 1, Gretna Village 1, Saskatchewan 1, Whitewater 1, Lorne 1, Macdonald 1, Virden 1, Woodlands 1).

**Diphtheria:** Total 47—Winnipeg 23, Ethelbert 11, Fort Garry 2, St. Clements 2, St. Boniface 1, Louise 1, Brandon 1, Tuxedo 1, Unorganized 1 (Late Reported: Ethelbert 3, Unorganized 1).

**Encephalitis:** Total 31—Winnipeg 2, Hamiota Rural 1, Unorganized 1, Morris Town 1, Rivers Town 1, Springfield 1, St. Vital 1, Transcona 1, Selkirk 1, St. Boniface 1, Unorganized 1 (Late Reported: Norfolk North 3, Rosedale 2, St. James 2, Fort Garry 2, Kildonan West 1, Napinka Village 1, Portage Rural 1, Rossburn 1, Brenda 1, Mossey River 1, Ritchot 1, Ste. Anne 1, St. Vital 1, Unorganized 1).

**Whooping Cough:** Total 28—Winnipeg 8, Flin Flon 4, St. Clements 3, Unorganized 3, Brandon 1 (Late Reported: Unorganized 3, La Broquerie 3, Flin Flon 2, St. Clements 1).

**German Measles:** Total 19—Fort Garry 6, Brandon 5, Tuxedo 3, Brandon 2, St. James 2 (Late Reported: Kildonan East 1).

**Influenza:** Total 18—Brandon 4, Whitewater 2, Unorganized 2, Winnipeg 1, Mossey River 1, Tuxedo Town 1 (Late Reported: Cartier 1, St. Boniface 1,



Grey 1, Franklin 1, Russell 1, Springfield 1, Grandview 1).

**Erysipelas:** Total 13—Woodlands 3, Winnipeg 2, Dauphin Town 1, Cameron 1, Cartier 1, Hanover 1, McCreary 1, Unorganized 1, Transcona 1, Winnipeg 1.

**Meningococcal Meningitis:** Total 12—Hanover 2, Unorganized 2, Dauphin Rural 1, Dauphin Town 1, Stonewall 1, Fort Garry 1, St. Boniface 1 (Late Reported: Portage la Prairie 2, Minnedosa 1).

**Diphtheria Carriers:** Total 8—Ethelbert 3, Fort Garry 2, Winnipeg 2 (Late Reported: Ethelbert 1).

**Lobar Pneumonia:** Total 7—Brandon 3, La Broquerie 1, Odanah 1 (Late Reported: St. James 1, Eriksdale 1).

**Typhoid Fever:** Total 6—De Salaberry 1, Hanover 1 (Late Reported: Grandview 1, Rhineland 1, Shellmouth 1, Unorganized 1).

**Septic Sore Throat:** Total 3—Brandon 2, Ste. Anne 1.

**Undulant Fever:** Total 2—Winnipeg 2.

**Typhoid Fever Carriers:** Total 1—Grandview Rural 1.

**Trachoma:** Total 1—Springfield 1.

**Bacillary Dysentery:** Total 1—(Late Reported: Siglunes 1).

**Treaty Indians:** Total 34—Tuberculosis 16, Measles 7, Typhoid Fever 5, Anterior Poliomyelitis 3, Influenza 1, Encephalitis 1, Bacillary Dysentery 1.

**Venereal Disease:** Total 131—Gonorrhoea 89, Syphilis 42.

DISEASES	Manitoba Nov. 5-Dec. 2	Ontario Nov. 2-Nov. 29	Saskatchewan Nov. 2-Nov. 29	Minnesota Nov. 2-Nov. 29	North Dakota Nov. 2-Nov. 29
Anterior Poliomyelitis	1	9	2	20	3
Meningococcal Meningitis	4	23	1	1	1
Chickenpox	224	1,535	310	778	
Diphtheria	26	6	20	5	6
Erysipelas	6	7	2	2	
Influenza	7	10	3	1	32
Leth. Encephalitis	3		1	2	10
Measles	58	367	82	85	236
German Measles	15	62	15		
Mumps	188	647	162		
Scarlet Fever	74	1,012	79	202	37
Septic Sore Throat	1	39			
Smallpox				2	1
Trachoma	1				
Tuberculosis	48	195	46	107	19
Typhoid Fever		4	3		
Typh. Para-Typhoid		2	1		
Undulant Fever	2	4			
Whooping Cough	16	569	9	223	41
Diphtheria Carriers	5				

Poliomyelitis still shows a few cases in Ontario and Minnesota but Manitoba and Saskatchewan are practically free of it.

Encephalitis—we had three cases reported and North Dakota, ten; Saskatchewan, one, and Minnesota, two.

Diphtheria—we had 26 cases and 5 carriers reported. This unenviable record is chiefly due to an outbreak in one Municipality where toxoiding had not been done. After this outbreak (with one death) immunization is being done by a newly appointed Health Officer.

Morbidity of other communicable diseases is running along near usual expectancy.

## DEATHS FROM COMMUNICABLE DISEASE

October, 1941

URBAN—Cancer 43, Pneumonia Lobar 5, Pneumonia (other forms) 12, Tuberculosis 4, Syphilis 3, Lethargic Encephalitis 2, Cerebrospinal Meningitis 1, Influenza 1, Puerperal Septicaemia 1, Scarlet Fever 1, Typhoid Fever 1, other deaths under one year 25, other deaths over one year 171, Stillbirths 12. Total 282.

RURAL—Cancer 27, Tuberculosis 17, Pneumonia Lobar 2, Pneumonia (other forms) 7, Influenza 2, Diphtheria 1, Lethargic Encephalitis 1, Dysentery 1, Whooping Cough 1, other deaths under one year 17, other deaths over one year 154, Stillbirths 14. Total 246.

INDIANS—Tuberculosis 4, Pneumonia 2, Dysentery 1, other deaths under one year 4, others deaths over one year 8, Stillbirths 1. Total 20.

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